Program And Species Descriptions

Fisheries Management

Wild Trout

Wild trout are trout that occur naturally in any given water. Neither they nor their ancestors were introduced by people. Maintaining wild trout fisheries in Idaho continues to be a major challenge. Native Idaho trout include the rainbow trout subspecies - redband trout, three subspecies of cutthroat trout (westslope, Yellowstone, and Bonneville) and bull trout. In waters accessible to "sea-run" trout, steelhead (the anadromous redband trout), chinook salmon, and sockeye salmon are also native Idaho trout. The Department strives to perpetuate wild trout in numbers adequate to provide fishing opportunity. Wild trout are important to Idaho biologically because they evolved here and are best adapted to their native waters; ecologically, because their presence is an indicator of the overall health of Idaho's waters and because Idaho anglers place a high value on wild, native trout. Economically, wild trout populations are self-sustaining, and thus are much less costly to manage than hatchery supplemented fisheries. Many anglers also target wild trout for unique characteristics found only in native fish within their native environment, thus adding great value to Idaho's economy. The Department, by statute, is the

steward for Idaho's native fishery resources and must ensure that wild trout populations are perpetuated.

The status of Idaho's native trout has been scrutinized during the past few years through petitions for protection under the Federal Endangered Species Act. Chinook and sockeye salmon were listed as endangered in 1991, steelhead were listed as threatened in 1997, and bull trout were listed as threatened in 1998. In recent years, Westslope, Yellowstone, and Bonneville cutthroat trout and redband trout were petitioned for listing. The U.S. Fish and Wildlife Service (USFWS) determined in 1995 that redband trout, in 2000 that westslope cutthroat trout, and in 2001 Yellowstone cutthroat trout did not warrant listing. Decisions on the other petitions are pending. The Department has provided technical information to the USFWS that suggests Yellowstone and Bonneville cutthroat trout populations in Idaho are reduced from historic levels but are not in danger of extinction.

During the last quarter century the Department has progressively taken more and more steps to preserve, protect, perpetuate and manage wild trout. Pioneering research in the late 1960s and early 1970s on the North Idaho waters of Kelly Creek, and the St. Joe and Lochsa rivers documented significant benefit to wild westslope cutthroat trout populations from catch-and-release or from restrictive bag and size limits. Currently waters in the state that support wild trout populations have some kind of fishing rule that limits harvest of wild trout. The Department has placed a higher priority on wild trout protection than fishing rule simplification. Therefore, additional restrictions have been added at the expense of simplification. An example of a restrictive harvest rule is where the general trout limit is six but only two may be cutthroat trout. In some instances the harvestable wild trout must be at least 16-inches long. In some wild trout waters where spawning may be a limiting factor, the fishing season does not begin until July 1, after most wild cutthroat trout or rainbow trout would have finished spawning. In a few waters no wild trout may be harvested. In the case of bull trout, anglers may not harvest bull trout at any time or place in Idaho. Key to efficacy of special regulations to protect wild trout is fish identification. Recent research in several states have identified that fish identification should receive additional emphasis as an aspect of angler education.

The Department recently took additional steps to further protect wild trout. Some actions taken include: (1) cessation of the Department's brook trout stocking program in native trout streams; (2) allowing anglers a bonus harvest of brook trout in addition to the existing trout limit, and (3) sterilization of rainbow trout used for most stocking to prevent hatchery trout from hybridizing with wild trout. Rainbow trout are sterilized by heat-shocking their fertilized eggs. Where sterile rainbow trout are deemed necessary, the Department's goal is for 95% or more of the fish stocked to be sterile.

Habitat quality is also a factor influencing wild trout well being, and is largely beyond the Department's authority. However, the Endangered Species Act petitioners identified habitat issues as problems for wild trout. The Department's role is discussed further in the habitat protection section.

During this six-year period the Department will continue to emphasize wild trout management by implementing the following measures:

- Regulate harvest, as needed, to protect wild trout populations and to maintain acceptable catch rates;

- Reduce or eliminate introgression with hatchery trout;

- Continue outreach efforts to increase stream habitat protection by landowners using volunteers and Department personnel;

- Work with land and water users, including Indian tribes, and with the Idaho Departments of Water Resources, Environmental Quality, Lands and Agriculture to reduce impacts to wild trout habitat;

- Encourage and initiate partnerships with resource agencies and water users to provide adequate fish screens and migration bypass design at irrigation diversions, and to provide suitable flows to protect wild trout*;*

- Provide pamphlets, brochures, signs, posters and cards that increase anglers' knowledge of the difference between trout species and how to release wild trout with minimal injury;

Wild trout bag limits will generally be two fish with additional harvest opportunity provided on exotic or hatchery trout if present. This selective rule emphasizes protection for wild trout while allowing ample harvest on hatchery-reared or exotic trout. This encourages anglers to limit harvest of wild trout. Where needed, fishing for wild trout will length-restricted or catch-and-release basis. As a last resort, streams or lakes will be closed to harvest to protect wild trout.

In lightly fished streams, the reduction in bag limit to two wild trout may do little to affect harvest and may not be biologically necessary. When limits are liberal, anglers rarely harvest their limit and the reduction in total harvest resulting from a more conservative limit is small relative to the total fish population. However, a conservative bag limit for wild trout directs more consumptive anglers to waters managed with liberal limits on hatchery trout or warm water fish species. The differential bag limit also reinforces the non-consumptive values of wild trout.

Hatchery Trout

The mission of the Department's hatchery section is:

Recognizing the values of natural fish; hatcheries provide quality fish for anglers, fish management, and citizens to maintain and enhance Idaho's fisheries resources, and promote Department programs.

The Department currently has 10 hatcheries that produce resident salmonids. Three other facilities produce resident fish in addition to their primary function as anadromous fish hatcheries.

Domesticated rainbow trout stocks are used primarily in reservoirs or streams where habitats are not capable of supporting wild or natural production. These trout stocks typically do not survive in streams and contribute little to natural reproduction. Because fingerling trout (3- to 7-inches) do not survive to grow to acceptable sizes, most trout stocked in streams will be catchable size (8- to 10-inches). Hatchery trout of various sizes from fry to catchable size are used in lakes and reservoirs depending on growth, survival, and reservoir water conditions.

Put-and-take (catchable) trout used in stocking programs cost approximately $0.50 each to rear and stock. Trout must be stocked at times and places where they are available to anglers and where they are likely to be caught.

Shifting hatchery catchable size fish stocking in lakes and reservoirs to 5- to 7-inch subcatchables will be evaluated on individual waters. The Department will look at various environmental parameters such as water temperatures, zooplankton densities and sizes, species compositions and predator populations in order to determine the best use of the hatchery produced subcatchable sized trout. If successful, this will allow the Department to stock greater numbers of trout and return fish to the creel at a lower production cost.

Fish health in hatchery stocks, as well as wild stocks, are a concern to the Department. As a result, the Department has participated in the development of, and is adhering to, fish health guidelines set forth by the Pacific Northwest Fish Health Protection Committee and the Integrated Hatcheries Operation Team. In addition, the genetic purity of wild/ natural stocks is a concern. The Department will stock only sterile non-reproducing fish unless there is a need to supplement wild/ natural stocks with reproducing fish.

The Department has successfully developed the technology to produce sterile rainbow trout in its' hatchery program. The primary use of these fish is for waters containing self-reproducing wild/natural stocks and where fish management programs allow increased harvest rates for hatchery fish. During the next five years, the Department will also required sterile trout to be used in private ponds located within drainages where these same sensitive species co-exist to further reduce the potential of genetic introgression.

No increase in numbers of catchable size trout is proposed in this planning period. Fishing opportunity can be increased and improved by increasing efficiency of put-and-take trout programs through: (1) concentrating releases of catchables in easily accessible, heavily-fished waters; (2) timing releases to coincide with peaks in fishing pressure; (3) publicizing the location of catchable trout streams; (4) producing a consistently high-quality product at the hatcheries.

Details of planned hatchery production, development, and maintenance are described in separate reports available from the Department.

Quality and Trophy Management

Trout

The terms "quality" and "trophy" have been applied to trout fisheries by anglers and managers to mean various things, including whether fish were of wild origin or not and the aesthetics of the surroundings. Within the context of the Department's fish management programs and this plan, however, they are used to refer to specific management programs that utilize special regulations to increase the size of trout. They generally provide increased catch rates as well. Trout may be of wild/natural or hatchery origin.

Quality and trophy trout management differ in the size of trout the regulations are designed to provide. They are defined as follows:

> Quality Trout Management **-** A management program using special regulations, that reduces or delays mortality to provide increased size of trout, but where less than 20% of the fish exceed 16 inches. Quality trout management is appropriate for lakes and streams with poorer productivity and growth potential, or on waters

with trophy growth potential where the majority of affected anglers desire to retain more harvest opportunity than that provided under trophy management.

Trophy Trout Management - A management program using special regulations that reduces or delays mortality to provide increased catch rates and increased size of trout such that 20% or more of the trout exceed 16 inches. Trophy trout management is appropriate for lakes and streams with good productivity and growth potential where the majority of affected anglers desire to forego all or a major portion of or all harvest opportunity in order to catch large trout.

Special regulations used under quality and trophy trout management programs may include a combination of a 2-fish bag limit and various size limits, or catch-and-release where appropriate. Bait may be applied where necessary to achieve size structure goals. The Department has quality management programs that may utilize a minimum size limit of 14- inches or 16-inches, depending on productivity and biological characteristics of the fish population. Trophy management programs utilize a minimum size limit (most often 20-inches), again depending on productivity and biological characteristics of the fish population. For quality and trophy management objectives, slot limits may be used where there is a clear public demand for harvest opportunity or where recruitment is not a limiting factor. The most restrictive regulation, catch-and-release, may be used as part of quality or trophy trout management, depending on the same characteristics.

Quality and trophy management may include seasonal restrictions to reduce mortality on spawners, or on trout as they concentrate to migrate downstream in the fall in response to dropping water temperatures. Seasonal restrictions responding to these circumstances will be employed only after a biological necessity has been established. It may also apply to all trout within a body of water, or may be applied to certain species in order to provide a diversity of opportunity within the same body of water or a geographical area.

Idaho is fortunate to have many bodies of water, that provide large trout without special regulations because of their productivity or minimal angling pressure. These waters will remain under current general management with a 6-fish bag limit or wild trout management with a 2-fish bag limit. As the number of anglers using the water increases and harvest rates impact the size structure of the trout, or as more anglers desire to optimize catch rates and size of fish and de-emphasize harvest, quality and trophy trout management may be applied to additional waters.

The 1995-2000 State Fisheries Management Plan (IDFG 1995) noted that a large percentage of Idaho anglers wanted see additional waters managed for larger trout. One statewide goal for the 1995-2000 period was to apply trophy or quality management on approximately 5 to 10 additional streams or stream segments and 10 to 15 additional lakes or reservoirs. During that five-year time period the Commission placed four new lakes and reservoirs (Mormon, Blackstone, Springfield reservoirs and Payette Lake) and more than 20 new streams or stream segments under quality or trophy management regulations.

The Department also proposed to evaluate then current quality trout regulations that did not restrict the use of bait. Several studies were conducted in the previous planning period. These studies included waters as diverse as the South Fork Snake River, Silver Creek and Big Wood River and the Henrys Fork Snake River – all managed under quality regulations that allow the use of bait. Rivers like the South Fork Snake River and Henrys Fork Snake River have maintained considerable bait angling participation while other waters like Silver Creek and the Big Wood River now receive little bait angling effort even though the use of bait is allowed. In

general the studies found that allowing the use of bait is compatible with quality management objectives. Silver Creek experienced a very small difference in the number of large fish compared to sections where bait is not allowed. However, the overwhelming finding was that allowing the use of bait is compatible with quality trout management objectives and need not be prohibited where management goals for size and number are being achieved.

Bass

While trout still provide the bulk of angling opportunity in Idaho, bass are the preferred species by 8% of Idaho anglers. Both largemouth and smallmouth bass were some of the very first non-native species to be introduced into Idaho and they now support many popular fisheries. Bass are prolific enough to produce adequate numbers of young fish without stocking. However, the bass growing season is generally short in most Idaho waters due to the high altitude and northern latitude. Research studies indicated that bass growth was regulated primarily by water temperature, not food availability, so efforts to improve bass fisheries focused on regulations that would allow bass to live longer. Because of relatively slow growth and increasing harvest, the Department instituted a statewide 12-inch minimum size limit on bass in 1986 to improve size, quality and catch rates.

Quality and trophy bass fishing opportunities were created on some waters by reducing or delaying harvest with special regulations that allowed bass to live longer and therefore grow bigger. Most Idaho anglers define a "quality" size bass as a 14- to 16-inch fish. Bass over 20 inches are generally considered fish of "trophy" size. Quality and trophy bass management differs in the size of bass, the total catch rates, and the harvest opportunity the regulations are designed to provide. They are defined as follows:

> Quality Bass Management - A management program using slot limit regulations which reduces or delays harvest to provide increased catch rates for 12- to 16-inch bass, but where less than 20% would exceed 16 inches. Under quality bass management, the percentage of fish that exceed 12 inches would be greater than under general regulations, but total harvest rates may be reduced. The Department currently manages 15 lakes and reservoirs as quality bass waters.
>
> Trophy Bass Management - A management program using special regulations, which reduces, or delays harvest to provide increased numbers of larger bass such that 20% or more exceed 16 inches.
>
> Trophy bass management would maximize both catch rates and size of bass and provide only for harvest of trophy-sized bass. The Department currently manages seven lakes and reservoirs as trophy bass waters.

Special regulations used under quality and trophy bass management provide a combination of a two-fish bag limit and various size limits and/or seasonal harvest restrictions. The primary regulation for quality bass management would require anglers to release all bass prior to July 1 to prevent harvest during the pre- and post-spawn period when large bass are most vulnerable to harvest. Harvest would be allowed after July 1 for bass less than 12 inches or over 16 inches. Quality management may also include a 16-inch minimum size limit where harvest of bass less than 12 inches is not appropriate. The primary regulation for trophy bass management would require anglers to release all bass less than 20 inches. There are no season restrictions under

trophy management because the spawning period may be the only time bass of legal size are vulnerable to harvest.

During this next six-year period, the Department will continue to manage designated lakes and reservoirs for quality bass in addition to managing some for trophy fishing opportunity. Management of additional waters for quality bass or trophy fishing will be pursued where biologically appropriate and supported by anglers.

Steelhead and Salmon (Anadromous) Management

The Snake River upstream from Lewiston historically produced an estimated 55% of the summer steelhead trout, 40% of the spring chinook salmon, and 45% of the summer chinook salmon in the Columbia River. Historically, Idaho was also a key production area for fall chinook. Lesser numbers of sockeye and coho salmon inhabited the Snake River drainage.

Snake River coho are extinct. As discussed under "Program Direction," all other runs of naturally reproducing salmon and steelhead into Idaho are at a low level and most are listed. The strategies and management actions for naturally produced fish during this planning period are preservation-oriented because of low fish abundance.

The long-range goals of the anadromous fish program are to (1) maintain genetic and life history diversity and integrity of both naturally- and hatchery-produced fish; (2) rebuild naturally-producing populations of anadromous fish to utilize existing and potential habitat at an optimal level; (3) achieve equitable mitigation benefits for losses of anadromous fish caused by development of the hydroelectric system on the Snake and Columbia rivers; (4) improve overall life cycle survival sufficient for delisting and recovery by addressing key limiting factions identified in all “H’s” of hydropower, habitat, harvest, and hatchery effects; (5) allow consumptive harvest by sport and treaty fishers; and (6) coordinate regional management with Idaho anadromous management to ensure achievement of Idaho escapement and other goals.

To help meet anadromous program goals, Idaho's anadromous fish management utilizes both natural and hatchery production. Natural production recruits and sustains populations by spawning and rearing in the natural habitat without human intervention, regardless of the parentage of the spawners (i.e. naturally produced progeny of hatchery or wild/natural origin fish). Hatchery production recruits and sustains fish populations in a controlled artificial spawning and rearing environment. Fish managers classify three groups of salmon and steelhead based on definition of production and broodstock history: wild, natural, and hatchery fish.

Wild/Natural

Wild fish are native fish, which have no history of hatchery or nonnative fish outplanting or a limited amount unlikely to have had genetic impact. These fish are naturally produced without artificial intervention. Natural fish also result from natural spawning, but are either not of native broodstock, such as spring chinook in the Clearwater Basin, or have had substantial opportunity to breed with hatchery fish of native or nonnative origin. "Preservation" describes the fishery management applied to wild/natural salmon and steelhead (see drainage management plans). This is a management program, which prohibits directed harvest and/or angling in order to preserve salmon and steelhead populations. For anadromous fish listed pursuant to the ESA, preservation management is consistent with federal rules and recovery activities.

The Department will emphasize maintaining remaining populations of wild, native stocks of salmon and steelhead where they occur. Examples include wild steelhead in the Selway River and the South Fork Salmon River drainages, or wild salmon and steelhead in the Middle Fork Salmon River drainage and the Salmon Canyon tributaries (Table 3).

Table 3. Geographic location of wild populations of salmon and steelhead.

Spring/Summer Chinook

Salmon River
Salmon River tributaries from mouth to Middle Fork Salmon River, excluding Little Salmon and South Fork Salmon Rivers:

Lower mainstem South Fork Salmon River (Poverty Flat)

Secesh Drainage (South Fork Salmon River tributary)

Middle Fork Salmon River Drainage

Valley Creek

Snake River, mouth to Hells Canyon Dam
Captain John Creek

Granite Creek

Sheep Creek

Steelhead

Clearwater River
Lower Clearwater tributaries excluding Lolo Creek drainage

Lochsa River Drainage

Selway River Drainage

Salmon River
Salmon River tributaries from mouth to Middle Fork Salmon River, excluding Little Salmon River.

Rapid River (Little Salmon River tributary)

South Fork Salmon River Drainage

Middle Fork Salmon River Drainage

Snake River, mouth to Hells Canyon Dam
Small Idaho tributaries upstream from Clearwater River

Maintaining genetic integrity and diversity of the native stocks is essential to continued production (hatchery and natural) of fish suited for Idaho habitat, as well as being the only practical means of utilizing the full production capability of wilderness streams. Preserving the foundation of populations is critical so that survival improvement effected by management changes in the four "H's" or by natural environmental variables, such as ocean regime, can be capitalized for rebuilding and recovery.

Artificial production will be limited or absent in areas to be managed for wild production. Clear benefit as a result of benefit/risk assessment must be demonstrated prior to consideration of new interventions using artificial propagation as a safety net for wild/natural populations that may be at risk of loss of population viability during the next 10 years. Bringing wild fish into captivity will be considered only if essential for long-term preservation. Careful monitoring of wild/natural salmon and steelhead populations will be necessary for future conservation and recovery management decisions.

Releases of hatchery-produced fish will be managed to minimize straying of those fish as juveniles or adults into wild fish streams. Fisheries programs will not reduce population status to a level reducing genetic integrity or fitness.

Population abundance will be increased by improving survival of juveniles and adults with priority on migration through the Snake and Columbia rivers corridor and regional fisheries. Spawning and rearing habitat improvements that provide significant survival benefit for wild/natural populations of salmon and steelhead will be pursued in collaboration with land managers and private landowners.

Hatchery

Management of salmon and steelhead hatcheries is focused on providing juvenile and adult fish to provide harvest opportunity and to enhance natural production, such as through supplementation. Idaho's anadromous fish hatcheries were built as mitigation for lost production and survival due to hydroelectric development.

Hatchery fish are sustained by some degree of artificial production, generally for several generations. They are released from hatcheries primarily as smolts and return as adults for spawning and subsequent artificial production of their progeny. The objective is to produce enough surplus adults so that fisheries can be offered. Genetic material or behavior may be different than wild/natural salmon and steelhead due to adaptation to the hatchery environment. Of the fishery management classifications (see drainage management plans), "anadromous" refers to management, which targets harvest opportunity on hatchery-origin fish while protecting wild and natural fish.

Department-approved evaluation studies will continue to provide management direction for use of hatchery fish to preserve and rebuild natural stocks. Evaluation and implementation of supplementation programs targeting natural fish populations will be regionally coordinated. The Idaho Supplementation Studies (ISS) for chinook salmon currently encompasses several tributaries and hatcheries. New efforts directed at using hatchery production to sustain and rebuild natural steelhead numbers are being initiated. To date, supplementation of natural stocks with hatchery fish has not yielded long-term increased natural production, although there has been an increase in the number of fish spawning in many cases. Rebuilding only through supplementation or other artificial production mechanisms is unlikely, particularly if life cycle

survival is below replacement. Conceptually, supplementation will increase the total number of fish produced in the natural environment, but it will not increase productivity (survival) of fish in the natural environment. The Department will continue to carefully assess the risks of using hatchery fish over the long-term to bolster numbers of fish in the natural environment.

The Department will utilize hatchery production to (1) produce fish that maintain optimum survival to adults through disease control, fish culture practices, and release strategies; and (2) provide fish at various life stages that can be utilized for harvest, supplementation, reintroduction, and research purposes. A new role of hatcheries will be to help preserve salmon and steelhead populations on the verge of extinction until life cycle survival permits rebuilding. The Department will continue to develop hatchery practices than can be used with wild or natural broodstock that will be suitable for returning their progeny to natural rearing habitat. We will also continue to mark hatchery smolts prior to release to minimize mixed stock harvest conflicts and to maximize harvest and natural production management options.

White Sturgeon

The white sturgeon is the largest freshwater fish in North America, reaching documented sizes of up to 18 feet in length and 1,385 pounds, and rumored to be even larger. White sturgeon originally occurred in the Snake River downstream from Shoshone Falls, the lower Salmon River, and in the Kootenai River.

Sturgeon have declined in Idaho. The decline began in the 1880s when demand for smoked sturgeon and caviar caused sturgeon to be overfished. Construction of dams in the early 1900s accelerated the decline, as much of the large, free-flowing river habitat required by sturgeon was lost. Present populations of sturgeon in the Snake River drainage are restricted to short river reaches, isolated from other populations by dams. Sturgeon in the Kootenai River swim freely between Kootenay Lake British Columbia, Canada, the Kootenai River in Idaho, and upstream as far as Kootenai Falls in Montana. Commercial fishing for sturgeon was stopped in 1943. Harvest of sturgeon from the Snake River drainage has been prohibited since 1970. Harvest of sturgeon was also prohibited in the United States' section of the Kootenai River beginning in 1984 because this population was also decreasing. Kootenai River sturgeon were listed in 1994 by the U.S. Fish and Wildlife Service as an endangered species under the ESA. Because of the listing and continued population decline, the Kootenai River was closed to sturgeon fishing in 1995.

To gather information about the many different populations of sturgeon in the state, the Department started a mandatory sturgeon permit program in 1989, continuing through 1996. Permits more than doubled by 1994 when about 6,000 permits were issued. The permit information, such as catch and size, was evaluated annually to aid in management decisions affecting sturgeon. However, the free permit was discontinued due to charges associated with the licensing system. The use of the permit or similar system of identifying sturgeon anglers should be re-evaluated and possibly reinstated as a method to provide annual catch and effort information.

The statewide sturgeon management goal is to preserve, restore, and enhance viable white sturgeon populations capable of providing sport-fishing opportunity. The Department has five policies governing sturgeon management. They are:

1. Status of existing sturgeon populations will be determined and monitored, and factors suppressing populations will be evaluated.

2. Sport fishing will be regulated commensurate with population status.

3. Habitat loss or degradation will be opposed and measures will be promoted to improve limiting factors.

4. Importation of non-native sturgeon will be restricted to avoid potential genetic or disease impacts to native stocks.

5. Sturgeon populations may be supplemented with native stocks where necessary to maintain future management options, to research survival rates, or to utilize suitable rearing habitat where natural recruitment does not exist.

Research conducted on the Kootenai River sturgeon population showed that no significant recruitment has occurred since 1974. Changes in the flow pattern of the Kootenai River caused by Libby Dam (located in northwest Montana) is the major factor inhibiting recruitment. Trapping of nutrients by Libby Dam is potentially another contributing factor to reproductive failure. Lack of reproduction was a major factor in listing Kootenai sturgeon under the ESA. The Department's research will continue to focus on regulation of discharge and nutrients as the major factors affecting recovery of the Kootenai River sturgeon population. The Department will participate on the Kootenai Sturgeon Recovery Team of the U.S. Fish and Wildlife Service to develop recovery measures that emphasize restoration of natural sturgeon reproduction and recruitment to the Kootenai River white sturgeon populations.

The Kootenai Tribe of Idaho has been operating an experimental sturgeon hatchery since 1990 to gain knowledge about limiting factors to wild sturgeon reproductive success in the Kootenai River and to provide genetic diversity to the depressed wild stock. An additional backup facility was brought on line in 1999 at the Kootenay Trout Hatchery in British Columbia. Limited numbers of age two juvenile sturgeon were stocked in the Kootenai River in 1992, 1994, 1997 and 1999. Larval sturgeon were released in 2000.

Successful sturgeon culture capabilities have been developed, and young hatchery sturgeon were released into the mid-Snake River in 1989-1999. These fish were tagged, then stocked in free-flowing reaches between major dams where reproduction has been eliminated. An introduction was also made into the Snake River downstream from American Falls, outside the historic range of sturgeon, resulting in a new fishery.

Evaluation of stocked hatchery sturgeon in the Snake River suggests that these fish do not do as well as wild fish. Body condition factors are somewhat less than wild fish condition and there is a concern regarding genetics swamping of wild populations with offspring from a small number of parents. Until survival, condition factors, and the potential for genetic swamping by stocked juveniles are carefully evaluated, the Department will not release hatchery reared white sturgeon in the native range of naturally spawning Snake River fish during this six-year planning period. Research may be conducted in Oxbow and Hells Canyon reservoirs to evaluate the stocking program, but these areas have no documented natural spawning. Ongoing studies where evaluation of hatchery reared sturgeon in the Snake River and the Kootenai River will provide important information for future programs, which may utilize hatchery produced fish to meet management goals.

Any further reduction in sturgeon habitat will be opposed. The goals of the Department are to improve sturgeon habitat, increase populations of wild sturgeon, and recover Kootenai sturgeon so they are delisted, and are able to provide angling opportunity.

An important aspect of the conservation of white sturgeon will be increased angler awareness of the unique biology and life history of this species. The Department will increase its efforts to provide information on sturgeon biology and life history, sturgeon population status by river reach, and use of proper tackle, terminal gear and release techniques for anglers. The Department will utilize regional education programs and existing funding to revise the white sturgeon brochure, produce a sport fishing for white sturgeon video for distribution, and create a sturgeon biology traveling workshop that staff can present at public informational meetings.

During this six-year management period, the Department will monitor sturgeon fishing effort and catch relative to population status. The following questions should be addressed.

1. What is the white sturgeon fishing pressure as compared to the last ten years, for tribal and non-tribal anglers?
2. Is tribal harvest impacting populations?
3. Can hatchery supplementation play an effective role in restoring populations (Kootenai River, Oxbow and Hells Canyon reservoirs)?

Warmwater and Coolwater Game Fish Management

Warmwater and coolwater game fish continue to increase in popularity with Idaho anglers providing sport fisheries in approximately one-third of the surface waters of the state. Fish management programs in all administrative regions except the Salmon Region use warmwater species to create sport fisheries. Anglers' preference for warmwater fish species has increased from 7% in 1977 to approximately 20% in 1999. Anglers, especially bass anglers, have learned that length limit regulations result in large bass that can be produced and recycled many times for sport fishing enjoyment. This is in stark contrast to twenty years ago when the majority of anglers only sought warmwater fishes for food.

All of the warmwater and coolwater fish species in Idaho are introduced non-native species. The major species that the Department actively manages are: largemouth bass, smallmouth bass, black and white crappie, channel catfish, yellow perch, walleye, northern pike, and tiger muskie. The distribution of these fish statewide can be found in Appendix B. The presence of these fish in Idaho presents opportunities and problems for the Department. On the positive side, warmwater species can create dynamic sport fisheries in altered habitats. The presence of warmwater species can also be negative when their introduction impacts salmonid fisheries through competition and predation. The Department currently reviews all fish species introductions with the American Fisheries Society "Introductions of Aquatic Species" guidelines.

Idaho anglers still prefer trout as their species of first choice, but many of their preferred waters now contain warmwater species. Statewide there are several instances of "two story" fisheries that have increased the available opportunity to anglers with the use of stocked trout and warmwater fish populations in the same waters. Typically costs to maintain a trout fishery through stocking are increased when warmwater species are abundant. The warmwater species present in Idaho can successfully reproduce in most areas, making these species less expensive to manage than trout stocking programs.

Largemouth Bass

Largemouth bass are generally most successful in smaller, warmer waters where vegetation is present and they have an abundant forage base of fish. Growth of largemouth bass in Idaho is limited primarily by water temperature and is generally much slower than areas of the country where bass are native. Due to their slow growth, largemouth bass are susceptible to overharvest. Despite slow growth rates and low productivity water in many areas of the state, Idaho anglers enjoy good bass fishing from a combination of restrictive regulations and strong support for catch-and-release fishing. This species is the top fish in the food chain in most waters.

Smallmouth Bass

Smallmouth bass are most successful in Idaho's large reservoirs, large lakes, and the Snake River. This species can thrive in waters with limited forage fish because they utilize crayfish as a preferred food item and will feed on zooplankton and aquatic insects longer than largemouth bass. Idaho's mainstem reservoirs and large lakes offer large expanses of rocky littoral area that generally support crayfish and other large aquatic insects. Smallmouth bass growth is also slow, requiring 5 to 7 years old before they reach the statewide length limit of 12 inches. Anglers seek smallmouth bass because their aggressive nature and high abundance tends to provide fast fishing action.

Black and White Crappie

Crappie are probably the most difficult warmwater species to manage successfully for Idaho anglers. In southern Idaho, crappies tend to stunt and do not provide a preferred size to the angler when introduced into small water bodies. Better population structures are generally found in larger eutrophic reservoirs. In northern Idaho, the lack of large fish is generally due to the short growing season rather than too many fish. These species are primarily zooplankters when small, then becoming more opportunistic when they reach a large size. Crappies are usually most vulnerable to anglers when concentrated near shoreline structure during the spring spawning season. During other times of the year, they suspended off the bottom in pelagic waters making them more difficult to catch.

Bluegill

Bluegill, and to a lesser importance pumpkinseed sunfish are the main prey for largemouth bass. For either of these species to grow to an acceptable angler size, there must be considerable predation on their young. By managing largemouth bass with a quality or trophy regulation, the increased density of bass reduces young bluegill densities and allows for improved growth. Bluegill can reach weights of over a pound when largemouth bass are managed to high densities. Pumpkinseeds rarely exceed a half-pound, however. Anglers enjoy bluegill because of their ease of capture, scrappy fight and abundance.

Yellow Perch

Yellow perch can produce important sport fisheries in Idaho's larger reservoirs and lakes. The species tends to have cyclic year class strength where the formation of strong year classes can dominate and suppress subsequent year classes for several years. Stable yellow perch populations and fisheries are associated with productive waters generally larger that 10,000

acres, which have complex fish communities. The complex fish communities are viewed necessary to maintain the appropriate balance of predation to prevent stunting and, at the same time, provide alternate food items for other predators. Yellow perch are extremely fecund, producing up to 40,000 eggs per female and can easily stunt because of overpopulation or, sometimes because of poor food supplies caused by poor water quality. In a mixed fishery, young yellow perch are an important food source for other predators. When yellow perch are introduced into trout fisheries, trout growth can be severely impacted due to food competition. The Department has been forced to renovate fisheries because of illegal introductions of yellow perch into waters managed for trout. Once yellow perch are introduced, it is extremely difficult and expensive to eliminate them to allow a more appropriate fish species to become established.

Catfish

The catfishes of Idaho consist of channel, flathead, brown and black bullhead species, and three other rarely found species. The channel catfish is by far the anglers preferred target species especially in the Snake River system from Swan Falls Reservoir downstream. Channel catfish reproduce successfully and have become self-sustaining in southwest Idaho waters. Flathead catfish are generally confined to the Snake River and Brownlee Reservoir. This species is considered a trophy species in southwest Idaho, with individuals commonly reaching 20 plus pounds. Bullhead catfish are very successful in small water bodies although they can tend to overpopulate and stunt. Many times they out-compete channel catfish. Bullhead catfish are easily captured while bait fishing and can tolerate poor water quality. All species are generally fished for with bait.

Walleye

Walleye is one of the most controversial introduced species in the western US. Walleye were first introduced into Salmon Falls Creek Reservoir in the mid-1970s. The Idaho Fish and Game Commission approved a policy in the 1980s to introduce walleye only in closed systems that have **no** chance of emigration to other waters. Generally speaking, western waters do not have the diverse and abundant forage base needed to support these prolific keystone predators, resulting in poor growth of walleye or problems with management of other game species.

The Department has extensively reviewed the introduction of walleye, first in 1983 when the policy was set to exclude walleye from the Snake River and confine introductions to isolated waters. The Department again reviewed the issue in 1990 with the Fish and Game Commission, but no change in policy was made. The Department has no plans to introduce walleye into any new waters during this six-year planning period.

Northern Pike

Northern pike were illegally introduced into Cave Lake in 1972 by anglers. Cave Lake is one of the nine “chain or lateral lakes” accessible by the Coeur d’Alene River. Northern pike were also collected in the Clark Fork River below Cabinet Gorge Dam in 1974. Both of these introductions came from northern pike populations that were illegally established in Montana waters. Northern pike spread rapidly throughout the Coeur d’Alene system and additional illegal introductions established northern pike many lakes. Northern pike are currently found only in the Panhandle Region of Idaho.

The establishment of northern pike in Idaho has had both good and bad consequences. Northern pike grow fast, are highly aggressive and are good eating, making them a highly desirable sport fish for some anglers. However, northern pike have negatively impacted other species through predation. Northern pike in Coeur d'Alene Lake prey on native westslope cutthroat trout adding another mortality factor to an already depressed population. There are no plans to expand the range of northern pike in Idaho during this planning period.

Tiger Muskie

Tiger muskies are a sterile hybrid cross between a female muskellunge and male northern pike. The first introduction of tiger muskies into the state was in Mud Lake in 1988. Additional introductions were made statewide and the Department currently manages tiger muskie in eight (8) lakes and reservoirs.

Tiger muskies are being utilized to provide trophy fisheries in waters where northern pike are not desirable, and to take advantage of abundant populations of non-game species such as Utah chubs and suckers. Tiger muskies have also been used on a limited basis for experimental control of brook trout in mountain lakes.

The Department manages tiger muskie populations with a 2-fish, 30-inch minimum size limit regulation. During this planning period, additional waters will be considered for tiger muskie management where the forage base is adequate and where there are no conflicts with other fish management goals.

Alpine Lake Management

Anglers utilizing alpine lakes have consistently expressed the highest level of satisfaction with their fishing experience. Alpine lakes provide an enhanced fishing experience in scenic country with the opportunity for solitude and remoteness. High mountain lakes (alpine lakes) are also important components in Idaho's recreation economy. Over 40,000 anglers fish in alpine lakes each year.

Alpine lakes are numerous in Idaho; it is estimated that over 3,000 alpine lakes exist in the state, ranging in size from small temporary ponds to large lakes over a mile long. Approximately 1,355 lakes are stocked or have a natural fish population. Many of the lakes have received fish since the early 1900s when fish stocking was conducted by backpack and horseback with intensive aerial stocking being initiated over the last 50 years. Aerial stocking of most lakes is done on two or three-year rotation schedules and is guided by a Memorandum of Understanding with the United States Forest Service. Although most of the species historically stocked were native to Idaho, they were not always native to certain watersheds. During the 1920s to 1950s brook trout were stocked into many lakes and established naturally reproducing populations. Other, apparently unsuccessful non-native fish stocked in the early 1900s included arctic char and Atlantic salmon. Yellowstone and Henrys Lake cutthroat trout were utilized for stocking through the 1980s in both native and non-native watersheds. All strains of rainbow trout used for stocking mountain lakes were of non-local stocks. In addition, bull trout, golden trout, brown trout, and grayling have been stocked to provide diverse fishing opportunities and meet specific management needs.

Historic alpine lake management was conducted to provide diverse angling opportunities. Wilderness areas were not designated at the time and little consideration was given to native fauna occurring in the lakes. Prior to fish introductions, amphibians were the top vertebrate

carnivores in most alpine lakes (Pilliod 1994). Introductions of fish into some of these systems has reduced amphibian populations through predation and competition (Pilliod 1999).

In recent years, the Department has developed an adaptive management approach to guide the alpine lake fish-stocking program. Information from a variety of sources is incorporated to continuously optimize the total array of benefits from the alpine lake program. Ecological and biological aspects of maintaining healthy amphibian populations are now considered in determining how alpine lakes are managed. Potential impacts to downstream native fish populations are also part of the decision process.

During this six-year planning period, the Department will continue to evaluate its alpine lake management based on the following guidelines:

1. Where desirable and feasible, some lakes will be maintained as fishless. Fishless lakes will allow for maintenance of natural conditions for native fauna within alpine ecosystems.

2. Management of alpine lakes in wilderness and national recreation areas will be coordinated closely with the appropriate land management agencies.

   The "Policies and Guidelines for Fish and Wildlife Management in Wilderness and Primitive Areas" manual, developed by the U.S. Forest Service, U.S. Bureau of Land Management, and the International Association of Fish and Wildlife Agencies, will guide management of these alpine lakes. Stocking plans for wilderness lakes should address impacts on fisheries, lake ecosystems, recreational use, and aesthetics. The Department is the lead agency for fish population management in alpine lakes. Stocking rates and frequencies will be adjusted to respond to changes in angler preferences and access.

3. Self-sustaining native trout populations will be maintained.

   Determination of a lake's capability of providing natural reproduction will be made when the lake is surveyed. Stocking will be modified or eliminated to reduce the detrimental effects of adding more fish on top of existing populations and to reduce costs.

   Species of special concern, native species, and threatened and endangered species within alpine lake drainages will be given management priority.

   Priority will be placed on management of alpine lakes to reduce or eliminate impacts to native species in and downstream from alpine lakes. In these drainages, sterile fish may be stocked to eliminate potential interbreeding with native fish in the system.

   Self-sustaining populations of non-native species may be reduced where feasible, to achieve native species goals or other fish management goals.

   Brook trout and other non-native fish can negatively impact native fish populations. When desirable, management will be directed towards reducing or eliminating non-native fish populations that are impacting native fish by utilizing regulations or population management actions.

4. Amphibian and Natural Fauna Plans.

   Most of the 1,645 alpine lakes in Idaho currently designated as fishless appear to provide amphibian habitat. Lakes that are fishless and that have never been stocked previously may remain fishless. A few lakes that currently hold fish may be removed from the stocking schedule as a research experiment to measure fish amphibian and other natural fauna population responses. These lakes will be selected to maintain biotic integrity of amphibian and invertebrate populations or to improve trout growth potential in adjoining lakes. During this six-year period, the Department will develop amphibian and natural fauna plans.

Native Nongame Species Management

Statewide fisheries management goals are to maintain or restore wild native populations of fish in suitable waters and historic habitats to ensure they have a high probability of long-term persistence, and are present in appropriate numbers to perform ecological functions and provide recreational opportunities.

- In total, 38 species of fish are native to Idaho waters. In addition to native game fish species such as trout, char, salmon, steelhead, burbot and white sturgeon, there are a number of other fish species that are native to Idaho. These include 8 sculpins, 10 minnows, 6 suckers, one lamprey, and one species of trout-perch. The ecological importance of these species in native habitats has only recently been considered, and many of these species play an integral role in supporting fish and wildlife communities that include important game species. All fish and wildlife in Idaho to be preserved, protected, perpetuated, and managed by the Department. These native nongame fishes are important for ecological, scientific, aesthetic, and cultural reasons.

- In several instances, little is known about the current status or distribution of these native nongame fish species. As with native sport fishes, habitat degradation and other factors have adversely affected native nongame fishes and the ecological communities they occupy**.** Species with very limited ranges or special habitat needs include the Bear Lake sculpin, Shoshone sculpin, Wood River sculpin, leatherside chub, Pacific lamprey and sand roller*.* Fish with restricted ranges are more prone to extinction than species with more widespread distributions. Pacific lamprey, which are anadromous, face essentially the same threats to survival as anadromous salmonids. Other species, including some of the minnow species, may actually increase to the point where the fish community is out of balance or no longer in a desired condition as a result of habitat changes such as reservoir construction**.** It is therefore imperative that the Department, in coordination with other agencies, significantly improve our understanding and knowledge about current distribution and population status of native nongame species and what role they play in ecological communities.

Guiding principles for the Department regarding native nongame fish species management include:

The Department will advocate protecting habitat for all aquatic communities supporting native fish species**.** In particular, special attention will be given to fish communities supporting native species with limited distributions. We will work with state and federal land management agencies and private landowners to promote wise land and water stewardship.

The Department will improve its understanding and knowledge about the distribution, population status, habitat preferences and management needs of native nongame species through monitoring and research, as appropriate funds are available.

The Department will take the lead in developing species management or conservation plans for native fishes including plans that address fish assemblages containing native sport and nongame fish**.**

The Department will take a proactive role in informing and educating Idaho citizens, agencies, and decision-makers about these important fishes.

Federally Listed Species

There are five fish species in Idaho that are listed as threatened or endangered under the Federal Endangered Species Act **(**ESA**)**. The Snake River sockeye salmon were listed as endangered in 1991. Naturally-produced Snake River spring, summer, and fall chinook, excluding the Clearwater River, were listed as threatened in 1992. The Kootenai River sturgeon was listed as endangered in 1994. Naturally-produced Snake River steelhead trout were listed as threatened in 1997. Bull trout were listed as threatened throughout its entire range in Idaho in 1998. The National Marine Fisheries Service (NMFS) oversees management of listed anadromous species such as salmon and steelhead. The U.S. Fish and Wildlife Service (USFWS) oversees the management of listed resident species such as bull trout and Kootenai River sturgeon. In 2000, a State of Idaho Office of Species Conservation was legislatively enacted (SB1490) to provide coordination, cooperation, and consultation among various state and federal agencies with ESA responsibilities in Idaho, to develop coordinated state policy for listed species issues, to negotiate and implement conservation plans and agreements, and to provide operations of a delisting advisory team and delisting management plan requirements.

The ESA is a federal law passed by Congress in 1973. Its purpose is to provide a means of assuring the preservation of animal and plant species that are in danger of extinction. An endangered species is any species which is in danger of extinction throughout all or a significant portion of its range, whereas a threatened species is any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Species may be broadly defined to include isolated breeding populations that are significant for ecological importance, such as the Kootenai River white sturgeon, which is comprised of a single spawning population. Restoration of a species to a level safe from extinction is the key aim of the ESA. Typically, restoration actions are guided by a recovery plan, and the tools of recovery may range from captive breeding to land acquisition. Critical habitat is also usually identified for listed species in order to provide special protection for key breeding and rearing areas.

Section 9 of the ESA prohibits the taking of listed species unless authorized by the federal management agency in charge. “Take” is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Essentially all of the Department's management and research activities for listed fish and other fish species that coexist with listed fall under the definition of take. Even though the Department is a conservation agency, it must be federally authorized to conduct tasks that preserve, protect, and perpetuate fish and wildlife resources when its actions take listed fish. The ESA requires the federal managers to determine that proposed actions are not likely to jeopardize the continued existence or recovery of listed fishes.

The administrative requirements for both the Department and the federal managers to propose and authorize activities are very lengthy because of their legal nature. Considerable reporting to the federal managers is also required. These responsibilities are in addition to state management functions. The substantial research, management, and administrative activities associated with federally listed fishes are supported primarily with federal contracts because federal hydropower development has been a major factor in the decline of all of Idaho's current ESA-listed anadromous fishes as well as Kootenai River Sturgeon.
Research, propagation, and management of listed fishes are directed at preservation and recovery in order to delist them. The sockeye captive broodstock program, implemented in 1991, is a significant example of a preservation action taken by the Department. Information and education about the status and presence of listed species has also been emphasized, such as "Wild About Salmon, An Educator's Guide" (IDFG and Project Wild 1999).

Changes in the Department's management of other species are sometimes required to reduce potential adverse effects to listed fishes. An example is the hatchery steelhead program, where there are concerns about interactions such as competition and predation with listed chinook. The Department has taken actions to minimize these interactions. Steelhead releases have been shifted out of listed chinook spawning and rearing areas and release numbers have been reduced. Another example is that the Department has all but eliminated use of brook trout in its hatchery program, to reduce potential genetic introgression with bull trout.

The Department will work with the Governor's new Office of Species Conservation (as stipulated by the Idaho Code) and federal managers of listed species to develop sound, biological approaches to delisting and recovery that address key factors of decline. The Department will work to ensure that Department programs do not jeopardize listed fishes but the Department will not support needless constraint of fisheries and fishing opportunity without defensible biological information.

Species of Special Concern

A number of races (or subspecies) and species of fish are considered to be threatened, endangered, or of special concern in Idaho (Table 4) but they are not listed pursuant to the ESA.

The Department defines and classifies threatened and endangered species in this plan similar to federal definition:

> Threatened Species: Any species, which is likely to become an endangered species within the foreseeable future in all or a significant portion of its range within Idaho.
>
> Endangered Species: Any species, which is in danger of extinction throughout all or a significant portion of its range within Idaho.

In contrast with the six bird and mammal species listed as Threatened and Endangered wildlife under Idaho Code, the fish species listed as threatened or endangered have no statutory protection under Idaho Code. Their classification as threatened or endangered is a policy statement for management, not legal, purposes.

Species of special concern are defined as native species which are either low in number, limited in distribution, or have suffered significant population reductions due to habitat losses, but is not likely to become threatened in the near future. The list includes three categories of species:

A. Species, which meet one or more of the criteria listed above and for which Idaho, presently contains, or formerly constituted, a significant portion of their range (i.e. priority species);

B. Species which meet one or more of the criteria above but whose populations in Idaho are on the edge of a range that falls largely outside the state (i.e. peripheral species); and

C. Species that may be rare in the state but for which there is little information on their population status, distribution, and/or habitat requirements (i.e. undetermined status species).

Making the Idaho endangered, threatened, or special concern list does not automatically create a management action response, as would happen if the ESA were applied. The Department will consider these sensitive species when making any fishery management decisions that affect their numbers, genetic integrity, or habitat. Likewise, we will use our knowledge of these fish to affect decisions by other agencies, entities, or individuals relative to the health of these species.

We will seek funding from outside, nontraditional sources to do status assessments, monitoring, or research of nongame species on this list. The Regional Fishery Managers, in concert with the Fisheries Bureau, will pursue information on population status and distribution by integrating inventory and monitoring activities into their annual work plans. The logical progression is to develop species management or conservation plans to guide recovery or maintenance of populations. When appropriate, we will collaborate with other state, federal, or private entities to develop conservation plans. The first priority for conservation plans will be candidate species for federal listing.

The Department will closely control the stocking of fish species and other aquatic organisms that might compete or interbreed with these fish, or indirectly have a detrimental affect on populations. We realize that in some cases, artificial augmentation may be the only viable alternative. This is where species management or conservation plans will provide direction.

Table 4. List of fish species that are endangered, threatened, or of special concern in Idaho. (Note: This list is developed only for Department management purposes. This is not a list determined for, or by, the federal Endangered Species Act, ESA listed species are not on this list.)

Common Name	Scientific Name	Status[1]
White sturgeon (Snake and Salmon rivers)	*Acipenser transmontanus*	SC-A
Burbot (Ling)	*Lota lota*	E-B
Cutthroat trout		
Bonneville cutthroat trout	*Oncorhynchus clarki utah*	SC-A
Westslope cutthroat trout	*Oncorhynchus clarki lewisi*	SC-A
Yellowstone cutthroat trout	*Oncorhynchus clarki bouvieri*	SC-A
Bear Lake whitefish	*Prosopium abyssicola*	SC-A
Bonneville whitefish	*Prosopium spilonotus*	SC-A
Bonneville cisco	*Prosopium gemmifer*	SC-A
Bear Lake sculpin	*Cottus extensus*	SC-A
Shoshone sculpin	*Cottus greenei*	SC-A

Wood River sculpin	*Cottus leiopomus*	SC-A
Leatherside chub	*Gila copei*	SC-C
Sand roller	*Percopsis transmontana*	SC-B
Pacific lamprey	*Lampetra tridentate*	E

Status[1]:

E Endangered
T Threatened
SC Special Concern (Categories A, B, and C; see page 45 for definitions)

The following provides additional description of species identified in Table 4:

Burbot

Burbot in Idaho are only found in the Kootenai River. They have a preference for cold, slow moving water. They experience the same altered flow environment as the federally listed Kootenai River sturgeon due to Libby Dam operations. The dam is operated for hydropower production, and has reversed the natural hydrograph to produce high discharge in the winter and low discharge in the summer. The Department is conducting research to learn more about the status and life history of burbot. Research in progress has implicated both the effects of altered flow and water temperature as factors limiting recruitment of burbot.

Cutthroat trout

Idaho's state fish is the cutthroat trout. The state fish is several subspecies of native cutthroat trout; all of which are in the special concern category. The Department will take actions to manage fishing and reduce genetic introgression from rainbow trout during this planning period. Determination of the efficiency of rainbow trout and brook trout population reduction will be determined and implemented where feasible. The most widely distributed subspecies is the westslope cutthroat trout. In 1997, the westslope cutthroat trout was petitioned for listing as threatened throughout its native range pursuant to the ESA, and in 2000 the USFWS ruled that listing was not warranted. However, all cutthroat trout must be seriously considered in fisheries and land management decisions in their remaining habitat. The Department will also emphasize cutthroat trout when reviewing timber sales, mining practices, grazing management, point and nonpoint source pollution, and antidegradation guidelines.

The Department includes the Snake River fine-spotted trout as a Yellowstone cutthroat trout, although some taxonomists suggest they are separate subspecies. Within Idaho, high quality habitat is restricted to the Snake River drainage upstream from American Falls Reservoir. Habitat is most affected by water withdrawals. Where possible, the Department will recover populations by species management working in cooperation with irrigation canal companies and the Bureau of Reclamation to screen diversions and develop more benign management practices for water storage and irrigation. The Yellowstone cutthroat trout was petitioned for listing under ESA in 1998. The USFWS ruled this petition was not warranted on April 22, 2001.

The Bonneville cutthroat trout in Idaho is limited to the Bear River drainage in the southeast corner of the state. It is found in only a few small tributaries to the Bear River. The Department recognizes the Bear Lake cutthroat trout as the adfluvial form of the Bonneville cutthroat trout. These fish are adversely affected by water management, dam construction, introductions of other fish species, grazing practices, and irrigation dewatering in tributaries. The Bonneville cutthroat trout was petitioned for federal listing in 1998, but a decision has not been issued by the USFWS

to date. The Idaho Department of Water Resources, Idaho Department of Environmental Quality, and the Caribou National Forest has responsibility for managing most of the affected habitat and streams. Adequate protection of the streams and riparian habitats has not been provided, leading to population decline. The Department is pursuing agreements to protect these streams against further habitat loss and to enhance already degraded habitats.

Fishes Endemic to Bear Lake

The Bear Lake whitefish, Bonneville whitefish, Bonneville cisco, and Bear Lake sculpin are only found in Bear Lake. Because of their restricted range, they are vulnerable to extinction in Bear Lake and related ecosystems. The Department will work with the Utah Division of Wildlife Resources, water managers, and landowners to maintain abundant populations of these fish and reduce potential threats.

Leatherside Chub

Little is known about the leatherside chub in Idaho. Available information suggests it was never abundant, and rarely reported. It inhabits clear cool streams and prefers a pool environment. Its natural distribution in Idaho was confined to the upper Snake River and Wood River drainages, and the Bonneville Basin. Even though extensive stream sampling has occurred throughout its range, Department personnel have only found it in Trapper Creek, the Goose Creek and Cassia Creek drainages. It is found more commonly in the Bonneville basin in Utah.

Pacific Lamprey

The Pacific lamprey was once common in the Snake, Clearwater, and Salmon river drainages. Columbia and Snake river dams and bypass systems may pose the greatest threat to the survival of Pacific lamprey in Idaho, particularly to the juvenile ammocoetes. Counts of adults at Ice Harbor Dam at the mouth of the Snake River numbered 50,000 in 1963 but returns to the Snake Basin have declined to less than a few hundred. Habitat changes in headwater tributaries through land use activities may also be a threat. Inventory work is needed to determine its present range and population status. Currently, inventory work is occurring in the South Fork Clearwater River drainage where they have recently been observed. Documenting habitat preferences remaining populations.

Redband Trout

Listings in previous management plans have included redband trout as a species of special concern. This subspecies of rainbow trout is uniquely adapted to streams with extreme water flow and temperature variations and high alkalinity in the high desert of southwest Idaho. Recently, taxonomists have concluded that the native rainbow throughout nearly all of southwest and south central Idaho are redband trout. Redband populations have remained genetically isolated in areas of extreme environmental conditions where other rainbow trout strains, races, or subspecies have been unable to survive, but land management practices have threatened their status. Hybridization with other rainbow trout stocks has also diluted the remaining gene pool. The redband trout is the only subspecies expected to survive in these types of environment and provide a viable fishery. Therefore, it has a higher value in its native environments and should receive management priority by the Department and land management agencies. The redband was petitioned in 1995 for listing under the ESA. The U.S. Fish and Wildlife Service is in the process of addressing the petitions. The outcome will possibly direct future action.

Sand Roller

The status of sand roller in Idaho, past and present, is unknown. No known record exists to determine their population status. Changes in the riverine habitats in the Columbia River basin may pose the largest threat to the survival of this fish species. Construction of dams and resulting reservoir environments, pollutants, and invasion of non-native species (particularly piscivores) are all threats to the continued survival of this fish (Cochnauer 1995). However, it appears that sand rollers are quite common throughout the Lower Columbia River (Mongillo and Hallock 1995). Data collected by these Washington investigations does not indicate upward or downward trends in population status.

Shoshone Sculpin

Prior to 1990, the Shoshone sculpin was the only Idaho fish species to be nominated for threatened status under the ESA. That nomination was withdrawn after extensive inventory revealed healthy but isolated populations in a few remaining free-flowing springs in the Thousand Springs area and the Snake River adjacent to the springs. Remaining habitat must be preserved to ensure a healthy population. Current status of Shoshone sculpin should be re-evaluated.

White Sturgeon

As previously noted, the white sturgeon in Idaho has been affected by habitat alteration and overfishing. Remaining habitat will be protected and angling activity carefully regulated to preserve the species. A sturgeon culture program has been implemented and may be used as a tool to rebuild populations only where recruitment is not present.

Wood River Sculpin

The Wood River sculpin has been located in tributaries to the Little Wood and Big Wood rivers and Camas Creek. More inventory work is needed to determine the extent of its range. It warrants the protection afforded by being listed as a Species of Special Concern until its range is more clearly defined. Inventory work is being done by the Nature Conservancy and U.S. Forest Service in concert with the Department in tributaries to the Big and Little Wood rivers.

Other Species

The blueback trout, *Salvelinus alpinus oquassa* was formerly the sunapee trout, which was synonymized with the blueback trout by taxonomists. It was introduced into high mountain lakes of the Sawtooth Range (tributary to the Salmon River), many years ago. The Idaho population of this exotic char is the only population outside of the native range of northeastern New England and southeastern Canada, where only a few populations remain. This fish was rediscovered in 1978. Because it is not native, it will not be listed as a species of special concern, but protection of this fish and its habitat is a high priority. The Department will protect this species by suppressing publicity, carefully monitoring the populations to determine their status, and by not stocking species, which would adversely affect blueback trout, in waters where they occur.

Fisheries Research

The mission of the Department's Fisheries Research Section is:

To develop and effectively communicate scientifically sound information and tools to enhance the management of Idaho's fisheries.

The section has four organizational components: anadromous fish species mitigation, resident fish species mitigation (both 100% outside funding), discretionary research, and program management/technical support (both funded 75% with federal sport fish restoration funds).

Mitigation research is applied in an adaptive management approach. Population monitoring evaluation, and other findings are used to recover populations of endangered or threatened sockeye, chinook, steelhead, Kootenai River white sturgeon and bull trout, as well as populations of kokanee, burbot, redband trout, Westslope cutthroat trout, Yellowstone cutthroat trout, and Bonneville cutthroat trout, rainbow trout, and other species that have been adversely impacted by hydropower systems. The general direction of these research activities is coordinated with other resource agencies, provincial, tribes, and federal or utility funding entities and set through funding contracts.

The evolving status of anadromous sockeye and chinook salmon, and steelhead recovery issues mandates research efforts on those species must be somewhat dynamic. Department anadromous research and management personnel identified and prioritized information needs most critical to recovery efforts during the next five years (Table 5).

Resident fish species mitigation research is designed to mitigate for fish populations impacted by development of the federal Columbia River hydropower system. Population monitoring, evaluation, and other findings are used to recover populations of Kootenai River white sturgeon, kokanee, rainbow trout, bull trout, burbot, and other species that have been adversely impacted by hydropower systems. A resident salmonid inventory/assessment project funded by mitigation funds is currently surveying the entire Snake River basin above Hells Canyon Dam. The general direction of these research activities is coordinated with other resource agencies, provincial governments, Indian tribes, and federal or utility funding entities and set through funding contracts (Table 6).

To provide direction for the remainder of the Department's fisheries research program, a combination of management, hatchery and research personnel identified, needed information and tools that would enhance fisheries management in Idaho (Table 7).

Table 5. Anadromous Research Activities, 2001-2006.

	Schedule
Design and implement research to determine best possible in-river condition with current hydropower configuration.	2001-2006
Relative survival of smolts subjected to various mainstem migration scenarios.	2001-2006
Implement stream fertilization and evaluate benefits to adult returns in Idaho.	2001-2006
Response in survival of smolts to returning adults for various migration conditions.	2001-2002
Estimate how long O. mykiss populations can produce viable smolts after anadromous adult returns have been eliminated.	2001-2006
Chinook and sockeye captive rearing and captive broodstock techniques.	2001-2006
A synopsis of hatchery supplementation research for salmon and steelhead.	2001-2003
Improvement of smolt production from hatchery stocks.	2001-2006
Chinook and steelhead life history parameters.	2001-2006
Sockeye O. nerka captive broodstock techniques	2001-2006
Written documentation of historic anadromous resource status, policies and management in Idaho.	2001-2003
Lamprey status review and life history parameters.	2001-2003

Table 6. Resident Species Mitigation Research, 2001-2006

Management needs to be addressed by outside mitigation funding (BPA)	Schedule
Evaluate methods to increase and stabilize the kokanee population in Lake Pend Oreille and Dworshak Reservoir.	2001-2006
Determine the impact of water releases (salmon flows) from Dworshak Dam on kokanee in the reservoir.	2001-2006
Assess the potential for the introduction of predatory fish in Dworshak Reservoir.	2003-2006
Quantify the effect of high dissolved gasses on the fish populations in Lake Pend Oreille.	2001-2006
Develop methods to inventory predatory fish in the deep basin lakes sufficient to evaluate rules and management actions.	2003-2004
Develop and test ways to remove lake trout from large lakes.	2002-2004
Develop more accurate ways to trawl and analyze trawl data.	2002
Determine survival and fate of cutthroat trout in Lake Pend Oreille.	2002-2006
Conduct broad-scale population inventories for native salmonids across the entire Snake River basin above Hells Canyon Dam	2000-2006
Identify native salmonid limiting factors in Snake River basin to develop, fund and implement restoration programs	2000-2006
Implement stream fertilization in blocked areas and evaluate benefits to resident species	2001-2006

Table 7. Discretionary Research Priorities, 2001-2006

Management needs to be addressed by discretionary research	Schedule
Lake and reservoir studies -hydroacoustic pop estimates and size structure -fingerling/catchable survival studies and stocking guideline development Warmwater fish Studies-life history/losses -Prediction of crappie year-class strength -Cascade perch collapse-evaluation Gamefish entrainment loss estimation -Relations between flows and entrainment losses for warmwater and coldwater species -Biological rule curve development for drawdowns	2001-2006
Sterile fish studies -Continue evaluation of lowland lake rainbow trout performance -Develop new sterilization recipes for westslope, Henrys lake hybrids and Kamloops rainbow trout -Evaluate potential for sterile kokanee -Evaluate sterile fish performance in high mountain lakes	2001-2006
Improve Hatchery Trout Return to Creel -Evaluation of the "raceway effect" – can we detect stragglers early enough to save feed costs, etc. -Predator training studies – can we "train" catchables and fingerlings to avoid predators? -Stream catchable mortality studies – what is the fate of the 60-90% of stream "uncatchables" and can this mortality source be reduced? +Fish health studies – comparison of returns among hatcheries +Development of catchable broodstock for streams	2001-2006
Native Species Studies/Coordination -Development and maintenance of statewide databases for native species -Yellowstone Cutthroat trout population assessment -Redband trout population assessment -Development of native species conservation plans -Population Viability Analysis How many pops are needed to reduce risk	2001-2006
Hatchery/Wild Trout Competition -Effects of stocking on game and non-game species	2001-2006
Hatchery Product Study -What type of product does the public want? (focus groups)	2004-2006
Develop methods to distinguish resident vs. anadromous rainbow trout juveniles	2004-2006
Conduct angler use, fish harvest, and angler economic surveys as needed	2001-2006
Develop database and GIS coverage for fish species distribution as needed to support fish management and Endangered Species Act listing needs.	2001-2006
Develop computer programs to facilitate database development, data storage, and retrieval as needed to support fish management activities	2001-2006

Aquatic Education

The Department is involved in aquatic and fishing education in many regional and statewide activities on a daily basis. Angler information requests either via phone, Internet request, office visits or contacts in the field are an ongoing priority of Department staff. Current funding for aquatic information/education is under the direction of the Regional Conservation Educator in each administrative Region and with the Information & Education Bureau.

Regional aquatic education programs vary statewide but generally consist of disseminating local fishing and stocking reports, providing information for the Department internet web page, developing regional brochures about the local fishing lakes and streams of local interest. Some regions have begun to develop rod loaner programs where “organized groups” may check out fishing rods and reels to use for education/recreational use. The Department has promoted interest in cooperative educational programs such as the “Trout in the Classroom”, "Living Stream" and other local events that create interest in the aquatic world for both youth and adult. Each region has worked on several brochures pertaining to local fishing waters.

Statewide programs include production of fishing rule book proclamations, production of regulation signage such as signs for posting where we stock put-and-take trout, and a bull trout identification program. Operation of the MK Nature Center in Boise and sponsorship of the annual "Salmon and Steelhead Days" is also provided. A teacher’s guide "Fishing a Lifetime Sport" to teaching aquatic subjects has been developed and promoted to educators and 4-H clubs. The Department participates heavily in Free Fishing Day activities to try and encourage the non-angler or beginning angler to try fishing without the cost of a license. The Department produced a statewide Anglers Guide and statewide Fishing Access publication during this past planning period.

Statewide priorities for funding aquatic education will focus on promoting youth aquatic and fishing education within the local school curriculums around the state. Current methods of disseminating angling information/education will be expanded and improved where possible. The Internet will be used along with traditional avenues such as radio and television, newspapers, and Department publications for information dissemination.

Habitat Protection

Habitat protection is the cornerstone to consumptive quality and trophy fish management and protection of all native fish populations. During this planning period, the Department will actively promote protection and restoration of habitat for life history needs of fishery resources in Idaho. We will seek the cooperation of other agencies, industries, citizen’s groups, and private landowners to develop and implement actions, which will result in the protection, maintenance, or enhancement of aquatic habitats.

The Department will assist others in the development and implementation of management practices designed to protect, maintain, or enhance habitat for fishery resources. We will provide leadership in the scientific monitoring of fisheries, native aquatic species, and habitat needs of fish. This information will be used to determine the effectiveness of habitat management actions, assess aquatic population status in relation to habitat projects and conditions, and evaluate long-term population trends. This information will be critical to planning for native fish species.

Technical assistance and scientific information will be actively shared. The Department will encourage use of its information by private, industry, State of Idaho, and Federal resource managers. Regional environmental staff biologists, present in all regions except Salmon, will take the lead along with coordinators in the Natural Resources Policy Bureau to facilitate Department involvement and input in Idaho habitat protection issues. Another key Department resource for habitat protection is the Fish Screen Shop in the Salmon Region, which focuses on screening projects and water delivery improvements in anadromous fish waters. Watershed approaches, such as the Model Watershed in the Lemhi and Clearwater Basins, will be utilized in some areas to facilitate habitat communication and improvement projects among state, federal, tribal resource managers and private landowners.

The habitat protection objectives of the Department shall be to:

1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features and processes necessary to ensure protection and restoration of the aquatic systems.

2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplain, wetlands, up-slope areas, headwater tributaries, and intact refugia. These linkages must provide migration routes to areas critical for fulfilling aquatic species life history requirements.

3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, bottom configurations, and natural flow regimes.

4. Maintain and restore ground water and surface water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain in the range that maintains the biological, physical, and chemical integrity of the ecosystem, benefiting survival, growth, reproduction, and migration.

5. Maintain and restore the sediment regime sufficient to support the aquatic ecosystem process. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.

6. Maintain and restore ground water and instream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be provided as needed to meet fish management goals.

7. Maintain and restore the species composition and structural diversity of plant communities in riparian zones and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering and flow, appropriate rates of surface erosion, and channel migration and to supply amounts and distributions of large woody debris sufficient to sustain physical complexity and stability.

Mitigation for activities that influence natural flow regimes or hydrology should include following daily and seasonal natural flow patterns.

The Department will encourage and actively work with land managers in the development of implementation of measures to evaluate watersheds. Watershed evaluations should:

1. Focus on ecosystem planning.

2. Describe those factors limiting aquatic habitats and the impacts of land use activities.

3. Determine local fish population species and health of the habitat.

4. Determine the physical and biological processes that effect local aquatic health.

5. Include input from local Watershed Advisory and/or citizen's groups.

The product of a watershed evaluation should guide and prioritize management actions, help determine aquatic and riparian management objectives, appropriate boundaries for riparian management areas, and help to prioritize restoration activities where needed.

The Department will encourage adoption of habitat and population restoration practices that will place the highest priority on protection of those habitats that provide full function for survival of all inland native fish.

Department restoration goals are to:

1. Maintain options for future recovery by ensuring a secure, well-distributed, and diverse constellation of natural habitats and co-adapted populations remain in place over the long term.

2. Secure existing populations of aquatic species, including fish, and maintain the critical areas supporting healthy ecosystem functions.

3. Maintain stream flow patterns and volumes to provide fish and wildlife habitat for all life stages.

Fishing Access

Providing access for anglers to fish is an important part of the Fisheries Program. Most water in the State of Idaho is owned by the State, but anglers are not allowed to trespass across private property to fish. Public access must be maintained or provided in many areas. When surveyed, anglers regularly indicate that providing access for fishing is an important function of the Department. The Department spends about 5% of the fisheries budget on access exclusive of the steelhead permit account. The steelhead permit account uses a portion ($4.00) of the cost of each steelhead permit primarily to acquire, maintain, and improve access for steelhead fishing. This program will continue as funds and opportunity allows. The Department is required to spend 15% of the funds it receives from the Sport Fish Restoration Federal Aid Program (Federal Aid) administered by the United States Fish and Wildlife Service, on motorboat access projects.

Increasing development of waterfront and streamside property tends to reduce access for all recreationists, especially anglers. The Department will continue to participate in land management actions to be a voice for anglers. Involvement in local planning and zoning decisions or state and federal planning efforts can help preserve traditional access to fishing waters. The Department will continue its programs of landowner relations, acquiring easements, leasing, or purchase and development of key areas to provide access for anglers to public waters.

Additional fishing docks and handicap access facilities will be provided at public fishing lakes and reservoirs. Boat ramps and docks will be built or existing ones repaired or replaced where appropriate. Approximately $900,000 per year will be expended in the next six years for the maintenance of existing, or acquisition and development of new boating and fishing access facilities. Major funding for these projects is provided from Federal Aid through an excise tax on fishing and boating equipment.

The Department has participated in the construction of fishing ponds in several Idaho communities. This worthwhile program encourages cost share cooperation with private, local and governmental entities to mutually benefit sportsmen and to increase fishing opportunities for young or beginning anglers. The Department benefits by recruiting new anglers to the sport, by providing urban fishing areas close to population centers and by attaining a very high return to creel from the number of fish stocked.

Each management region of the state has a Department access specialist who works in conjunction with field fisheries managers and headquarters staffers to acquire and maintain fishing access areas. About 330 sites are currently in the access program and provide fishing access, boat ramps and docks, parking, and toilet facilities. In addition, the program has constructed and developed some major fishing waters such as Spring Valley Reservoir and Horsethief Reservoir. The program cooperates with local irrigation districts and others to help repair dams, spillways, and outlet works to maintain or enhance fisheries. Costs of this program are currently about $500,000 annually. As future access sites are developed, the Department will need to consider ways to minimize maintenance requirements. Anglers and volunteers will be asked to help reduce costly maintenance so that more access opportunities can be provided. During this six-year plan period, previous access achievements will be reviewed and new priorities set for increasing access opportunities for fishing.

Public Information and Surveys

The fishery program will continue efforts to develop and provide fisheries information to anglers and others. Fifty-two percent of the anglers polled in the Angler Opinion Survey indicated the Department should provide more information about available fishing opportunities, locations of lakes and streams, public access areas and types of fish available through brochures and the newspaper. During the next six years the Department will continue to provide information to the public through:

1. Fishing Rules - simplification, readability
2. Current Fishing Conditions - 1-800-ASK-FISH, news releases
3. Places to go Fishing - fishing water brochures, fishing guide
4. Results of Fishing Surveys - regional newsletter reports, research reports, media articles and coverage
5. Fishing Tips - fishing leaflets, workshops
6. Environmental Issues - habitat and fish relationships, articles, regional newsletters, research reports.
7. Expand Information on Department Internet - regional fishing reports, fish stocking information, regulations, fishing surveys, and access areas

Private Fish Ponds

Idaho has regulated the transport and stocking of fish into private ponds since 1976 to prevent the introduction and spread of undesirable fish species and fish diseases into public waters. Private pond owners who wish to stock their pond with fish are required to obtain a private pond permit from the Department. This permit requires that the fish to be stocked will be compatible with Regional Fishery Management Drainage Plans and free of disease. The Department's Regional Office serving the pond owner will generally issue private pond permits.

With the proliferation of private pond construction across the state, it is becoming increasingly difficult for fishery managers to keep track of new ponds and new pond owners are frequently unaware of the pond permit requirement. This situation is potentially a serious threat to established fisheries. The Department will work with the private fish culture industry, the Idaho Department of Agriculture (which regulates private hatcheries), local real-estate offices and local construction companies (specializing in pond construction) to increase awareness of private pond permit requirements and procedures and the risks of exotic species to public resources.

Aquatic Species Control

The ability to prevent the introduction of, control or remove non-desirable aquatic species from specific waters is a major concern of fishery management. Two primary reasons for controlling non-desirable fish and other species are 1) control of exotic species to prevent or reduce negative impacts on native species in natural habitats and 2) control of both exotic and native species in altered habitats to maintain or improve fishing for desirable species.

Preventing the introduction of non-desirable aquatic species is the most efficient and economical method of controlling these species due to the cost of removal and very low chance of success. Species other than fish of immediate concern include the plant, Eurasian watermilfoil *Myriophyllum spicatum* and the bivalve, Zebra mussel *Dreissena polymorpha.* These species are highly invasive in suitable aquatic habitats and can quickly become a nuisance. Eurasian watermilfoil can completely choke a waterway, prevent boating, swimming and fishing, along with altering the habitat for native species. This plant has been found in Spirit and Hayden lakes and the Pend Oreille River in north Idaho and several isolated ponds in southwest Idaho. Zebra mussels form dense colonies that can clog intake screens on water supply lines and compete with native bivalve populations. To date, this species has not been found in Idaho.

Introductions of these and similar species into Idaho are accidental with the organisms attaching themselves to or being transported in boats, live wells and other equipment used in contaminated waters and then being transplanted when the equipment is moved to Idaho waters. Public education is the primary means to prevent the introduction of these nuisance aquatic species to Idaho waters. During this six-year plan, the Department will work with the Idaho Department of Agriculture and other state and federal agencies to increase public awareness of the potential problems and how to maintain clean boats, trailers and other aquatic equipment when traveling from water to water.

Concern over the introductions of new fish species has increased. The Department conducts a review following the American Fisheries Society guidelines for "Introductions of Aquatic Species" prior to any new species introduction, either by the public or the Department. However, with the increasing ease of purchasing and shipping live fish through overnight mail

systems; many people have the capability of releasing non-native fish into Idaho waters. Several of these species can have drastic negative impacts on native species and over all fishing success in Idaho waters. Legally, all fish and wildlife, except for a few commercial species, require an import permit from the Department before being brought into Idaho, however not all members of the public know this. The few commercial exceptions such as rainbow trout are under the jurisdiction of the Idaho Department of Agriculture. During this six-year period, the Department will increase efforts to inform the public of the importation requirements and will work with other state and federal agencies in controlling undesirable importations.

The ability to control or remove populations of fish in order to improve fishing or to protect native species is a major fisheries management tool. The use of rotenone and antimycin has proven useful in removing undesirable species. Antimycin has proven effective in removing non-native salmonids from habitat historically used by vulnerable species such as Yellowstone cutthroat trout. Applying piscicides requires permits from the Departments of Agriculture and Environmental Quality. The Department utilizes the "Lake Renovation Procedures Manual" to guide renovation projects (Horton 1997). Additional methods of controlling undesirable species include manual removal by electrofishing or netting, dewatering, installing barriers to prevent fish movement, and adding predatory species such as tiger muskie to control stunted fish populations.

Other Aquatic Animals

All wildlife are considered to be the property of the state and are protected and managed by the Department. Aquatic animals that are important to, may be impacted by, or may have an impact on fish management include amphibians, mollusks, crustaceans, and insects. Aquatic mammals and birds, which also may impact fish management, are not considered in this document.

One amphibian, the bullfrog *Rana catesbiana*, is legally classified as a game fish for management purposes and is subject to sport harvest. Management consists of restricting harvest to the same season as other game fish in waters where they occur. Scientists specializing in amphibians are concerned about apparent declines in amphibian abundance and what effect introduced amphibians, such as the bullfrog, may play. Transplanting bullfrogs into suitable, underutilized habitat will not be undertaken without advice from amphibian specialists. No program for specific management of bullfrogs is proposed for this six-year plan.

One order of crustaceans, crayfish, is also classified as game fish for management purposes and is subject to sport and commercial harvest. Native crayfish species are all members of the genus *Pacifastacus.* Management consists of restricting harvest to the same season as other game fish in waters where they occur for sport and commercial harvest and regulating types of gear used. Due to potential negative impacts on native species and potential problems associated with burrowing species on irrigation dykes, non-native crayfish will not be allowed to be imported into Idaho without an extensive review (American Fisheries Society "Introductions of Aquatic Species" guidelines), and approval of that review by the Director.

Other amphibians, crustaceans, aquatic insects, and mollusks provide forage for game fish, are used by anglers for bait, or are of scientific or aesthetic value. The Department has developed conservation plans for the spotted frog and the Coeur d'Alene salamander and present populations will be monitored while conducting normal fish surveys.

Special Fishing Opportunities

Youth Fishing Opportunities

Competing recreational activities may limit the time that new anglers have to develop fishing skills necessary to make fishing an enjoyable experience. The Department has been asked to manage certain waters for anglers who may not have the skills or the ability to compete with more experienced anglers. During this planning period, the Department will work with local communities, counties and sportsmen's groups to encourage some urban fishing waters be managed for the use of children younger than the age of fourteen. This is in keeping to the Department's mission to provided continued supplies of fish for all of the anglers in Idaho and in responding to the changing needs of society.

Commercial Fisheries

The Idaho Legislature enacted commercial fishing legislation in 1988 to document the use of crayfish and nongame fish for commercial purposes. Later that year, the Commission adopted commercial fishing rules. The rules established an equitable fee structure for the take of these resources. Some nongame fish have commercial value as animal feed, fish bait, fertilizer, and for human consumption. These species may reduce game fish populations through competition and predation and may be a nuisance to sport anglers. In many Idaho waters, the majority of the fish biomass is nongame fish such as suckers, carp, pikeminnows, and chubs.

Crayfish are a species used for human consumption and are an important bait for fishing. They are also an important food source for some of our sport fishes. The effect of commercial exploitation of crayfish on the food availability for game fishes is unknown. However, reporting requirements for the commercial license will provide the Department with information during this six-year period and if necessary, controls on the harvest of crayfish will be developed.

Currently, commercial fishing activity is greatly reduced. Since 1996, only 11 licenses have been issued for fish and crayfish combined. Prices paid for live crayfish at large markets outside of Idaho were less than the cost of harvesting them. In 1989 and 1990, before the market collapsed, more than 25,000 pounds of crayfish were harvested per year. In 2000, less than 200 pounds have been reported.

A similar decline occurred for commercial fish. In 1961 and 1962, 1.1 and 2.5 million pounds were harvested. From 1989 to 1995, the harvest was 0.5 to 1.1 million pounds annually by as many as eight people. Less than 100,000 pounds were harvested each year in 1999 and 2000.

Fishing Contests

Effective July 1, 1989, the Department was given the statutory authority to regulate fishing contests, tournaments, or derbies. Pursuant to that authority, a permit is required from the Department for any event in which an entry fee is required or a prize is awarded to participants based on the capture of an individual fish or the size or number of fish captured. Legislation passed in 2000, now requires the Department to charge a fee for any fishing contest, tournament or derby.

Applications are reviewed for the potential impact of the contest on other recreational users or impacts to fish populations or fish management goals for the body of water selected. Additional harvest restrictions may be included as provisions of a harvest contest permit.

The Department recognizes and permits two types of fishing contests: (1) a catch-and-release contest where contest rules require specific procedures to keep target species of fish alive and healthy and require that all fish caught by participants be released back into the contest water on the same day they were captured, and (2) a harvest contest where contest rules allow participants to keep the fish. In the next six years, the Department will work towards streamlining the permit process by investigating removal of the permit requirement for smaller tournaments.